

Form PTQ-1449
(Rev. 8-83)U.S. Department of Commerce
Patent and Trademark Office

Attorney Docket No. 0756-2064

Serial No. Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant: Shunji YAMAZAKI et al.

Filing Date: November 10, 1999

Group: 2813

U.S. PTO
09/437135

11/10/99

U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date (if appropriate)
EK	5,773,325	6/1998	Teramoto	438	151	
	5,237,188	8/17/93	Iwai	257	325	
	5,077,233	12/31/91	Mukai	—	—	
	4,851,370	7/25/89	Doklan et al.	437	225	
	5,476,802	12/19/95	Yamazaki et al.	437	21	
	5,608,232	3/4/97	Yamazaki et al.	257	66	
	5,639,698	6/17/97	Yamazaki et al.	437	228	
EK	5,700,333	12/23/97	Yamazaki et al.	136	258	

FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes No
EK	1-149475	6/12/89	Japan	—	—	Abstract
↑	1-128572	5/22/89	Japan	—	—	Abstract
	61-89621	5/7/86	Japan	—	—	Abstract
	61-166074	7/26/86	Japan	—	—	Abstract
	0 178 447	4/23/86	Europe	—	—	Full & Abstract
↓	5-55246	3/5/93	Japan	—	—	Abstract
EK	3-203329	9/5/91	Japan	—	—	Abstract

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EK	C. Hayzelden et al. "In situ transmission electron microscopy studies of silicide-mediated crystallization of amorphous silicon", (3 pages), Published 10/29/91.
EK	S. Wolf, "Silicon Processing for the VLSI Era" Vol. 3, Pages 658-60, 671-72, 1995.
EK	Translation of JP 2-140915, 5/1990.

Examiner *EK*

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EL	5,147,826	9/15/92	Liu et al.	437	233	
↑	5,275,851	1/4/94	Fonash et al.	437	233	
	4,810,673	3/7/89	Freeman	437	239	
	5,225,355	7/6/93	Sugino et al.	437	10	
	5,300,187	4/5/94	Lesk et al.	437	13	
	5,244,819	9/14/93	Yue	437	11	
	4,231,809	11/4/80	Schmidt	—	—	
	RE 28,386	4/8/75	Heiman et al.	—	—	
	RE 28,385	4/8/75	Mayer	—	—	
↓	5,264,383	11/23/93	Young	437	40TFT	
EL	5,314,724	5/24/94	Tsukune et al.	—	—	

FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes No
EL	61-63020	4/1/86	Japan	—	—	Abstract
↑	2-140915	5/30/90	Japan	—	—	Abstract
	2-295111	12/6/90	Japan	—	—	Abstract
↓	64-25515	1/27/89	Japan	—	—	Full
EL	4-102375	4/3/92	Japan	—	—	Full

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EL	P.H. Robinson et al., J. Electrochem. Soc. 118(1)(1971)141 "Use of HCl gettering in Silicon Device Processing", 5/1990.
↑	J.M. Green et al., IBM Tech. Discl. Bulletin 16(5)(1973)1612 "Method to Purify Semiconductor Wafers", 10/1973.
↓	S.K. Ghandhi, "VLSI Fabrication Principles" p. 389-92, 1/1982.
EL	Translations of JP 4-102375, 2-148831 and 1-187814 cited previously.

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EK	4,894,352	1/16/90	Lane et al.	—	—	
1	5,330,614	7/19/94	Ahn	—	—	
	5,124,014	6/23/92	Foo et al.	—	—	
	5,302,855	4/12/94	Matsumoto et al.	—	—	
	4,585,492	4/29/86	Weinberg et al.	—	—	
	5,317,236	5/31/94	Zavracky et al.	—	—	
	4,963,503	10/16/90	Aoki et al.	—	—	
	5,313,076	5/17/94	Yamazaki et al.	—	—	
	5,352,291	10/4/94	Zhang et al.	—	—	
EK	4,885,258	12/5/89	Ishimara et al.	—	—	

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	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
EK	2-148831	6/7/90	Japan	—	—	Full	
1	2-189954	7/25/90	Japan	—	—	Abstract	
	3-133131	6/6/91	Japan	—	—	Abstract	
	1-187814	7/27/89	Japan	—	—	Abstract	
EK	59-201422	11/15/84	Japan	—	—	Abstract	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EK		K.B. Kadyrakunov et al., Phys. Stat. Sol., A70 (1982) K15, "...Pulsed Annealing of Si-SiO ₂ Structures".
1		D.L. Crostwait et al., MRS PVOC., Fall 1980, Laser and Electron-Beam Solid Interactions..., pp. 399-405, "Effects of Pulsed Laser Irradiation on Thermal Oxides of Silicon".
		T.I. Kamins et al., Solid State Electron 23(1980) pp. 1037-1039 "Interface Charges Beneath Laser-Annealed Insulators on Silicon".
EK		S. Wolf and R.N. Taubev, "Silicon Processing for the VLSI Era", Lattice Press 1986, P182-5, 194-5.

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Ek	5,330,929	7/19/94	Pfiester et al.	—	—	
	5,308,998	5/3/94	Yamazaki et al.	—	—	
	5,313,075	5/17/94	Zhang et al.	—	—	
	5,278,093	1/11/94	Yonehara	—	—	
Ek	4,784,975	11/15/88	Hoffman et al.	—	—	

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	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Ek		M. Morita et al., Appl. Phys. Lett., 49(12) 1986, P. 699, "F-enhanced Photo Oxidation of Si..."
Ek		Kugimiya, K. et al., Japanese Journal of Applied Phy. 22(1)1982, P. L19-L21, "CW laser annealing of..."
Ek		Japanese J. of Appl. Phys., 33(1B)1994, P. 408-12 "Low Dielectric Constant Interlayer", Abstract only.
Examiner	Ek	Date Considered 3/17/03

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Ek	3,783,049	01/01/74	Sandera	/	/	
↑	4,727,044	02/23/88	Yamazaki	/	/	
	5,010,037	04/23/91	Lin et al.	/	/	
	5,075,259	12/24/91	Moran	/	/	
	5,298,075	03/29/94	Legendijk et al.	/	/	
	5,403,772	04/04/95	Zhang et al.	/	/	
	5,422,311	06/06/95	Woo	/	/	
	5,426,064	06/20/95	Zhang et al.	/	/	
	5,481,121	01/02/96	Zhang et al.	/	/	
↓	5,488,000	01/30/96	Zhang et al.	/	/	
Ek	5,492,843	02/20/96	Adachi et al.	/	/	

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	Document Number	Date	Country	Class	Subclass	Translation Yes No
Ek	58-190020	11/05/83	Japan	/	/	Abstract
	05-58789	03/09/93	Japan	/	/	Abstract
	62-33417	02/13/87	Japan	/	/	Abstract
	55-153339	11/29/80	Japan	/	/	Abstract
Ek	4-284675	10/09/92	Japan	/	/	Abstract

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Ek	S. Caune et al., "Combined CW Laser and Furnace Annealing of Amorphous Si and Ge in Contact with Some Metals", Applied Surface Science 36 (1989) 597-604.
	A. V. Dvurechenskii et al., "Transport Phenomena in Amorphous Silicon Doped by Ion Implantation of 3d Metals", Phys. Stat. Sol (a) 95, (1986) 635-640.
Ek	F. Fortuna et al., "In situ study of ion beam induced Si crystallization from a silicide interface", Applied Surface Science 73 (1993) 264-267.
	S.F. Gong et al. "Thermodynamic Investigations of Solid-state Si-metal Interactions. II. General Analysis of Si-metal Binary Systems" J. Appl. Phys. 68(9), 1 November 1990, 4542-4549.

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Ek	5,501,989	03/26/96	Takayama et al.	/	/	
	5,508,533	04/16/96	Takemura	/	/	
	5,529,937	06/25/96	Zhang et al.	/	/	
	5,534,716	07/09/96	Takemura	/	/	
	5,543,352	08/06/96	Ohtani et al.	/	/	
	5,563,426	10/08/96	Zhang et al.	/	/	
	5,569,610	10/29/96	Zhang et al.	/	/	
	5,569,936	10/29/96	Zhang et al.	/	/	
	5,580,792	12/03/96	Zhang et al.	/	/	
	5,585,291	12/17/96	Ohtani et al.	/	/	
Ek	5,589,694	12/31/96	Takayama et al.	/	/	

FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Subclass	Translation Yes No
Ek 64-37029	02/07/89	Japan	/	/	Abstract

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Ed	C. Hayzelden et al. "In situ transmission electron microscopy studies of silicide-mediated crystallization of amorphous silicon", (3 pages).
Ek	T. Hempel et al., "Needle-Like Crystallization of Ni Doped Amorphous Silicon Thin Films", Solid State Communications, Vol. 85, No. 11, 1993, pp. 921-924.
Ek	R. Kakkad et al., "Low Temperature Selective Crystallization of Amorphous Silicon", Journal of Non-Crystalline Solids 115 (1989) 66-68.
Ek	R. Kakkad et al., "Crystallized Si films by low-temperature rapid thermal annealing of amorphous silicon", J. Appl. Phys. 65(5), 1 March 1989, 2069-2072.

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U.S. PATENT DOCUMENTS

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Ek	5,595,923	01/21/97	Zhang et al.	—	—	
	5,595,944	01/21/97	Zhang et al.	—	—	
	5,604,360	02/18/97	Zhang et al.	—	—	
	5,605,846	02/25/97	Ohtani et al.	—	—	
	5,606,179	02/25/97	Yamazaki et al.	—	—	
	5,612,250	03/18/97	Ohtani et al.	—	—	
	5,614,426	03/25/97	Funada et al.	—	—	
	5,614,733	03/25/97	Zhang et al.	—	—	
	5,616,506	04/01/97	Takemura	—	—	
	5,620,910	04/15/97	Teramoto	—	—	
Ek	5,621,224	04/15/97	Yamazaki et al.	—	—	

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Document Number	Date	Country	Class	Subclass	Translation Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Ek	Y. Kawazu et al., "Low-Temperature Crystallization of Hydrogenated Amorphous Silicon Induced by Nickel Silicide Formation", Japanese Journal of Applied Physics, Vol. 29, No. 12, December, 1990, pp. 2698-2704.
Ek	S-W. Lee et al., "Low Temperature Poly-Si TFT Fabrication by Nickel-Induced Lateral Crystallization of Amorphous Silicon Films", AM-LCD 95, Digest of Technical Papers, 1995, 113-116.
Ek	S-W. Lee et al., "Pd induced lateral crystallization of amorphous Si thin films", Appl. Phys. Lett., Vol. 66, No. 13, 27 March, 1995, 1671-1673.
Ek	G. Liu et al., "Selective area crystallization of amorphous silicon films by low-temperature rapid thermal annealing", Appl. Phys. Lett., Vol. 55, No. 7, 14 August 1989, 660-662.
Ek	G. Liu t al., "Polycrystalline silicon thin film transistors on Corning 7059 glass substrates using short time, low-temperature processing", American Institute of Physics, 2554-2556.

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Ek	5,624,851	04/29/97	Takayama et al.	—	—	
↑	5,637,515	06/10/97	Takemura	—	—	
	5,643,826	07/01/97	Ohtani et al.	—	—	
	5,646,424	07/08/97	Zhang et al.	—	—	
	5,654,203	08/05/97	Ohtani et al.	—	—	
	5,656,825	08/12/97	Kusumoto et al.	—	—	
	5,663,077	09/02/97	Adachi et al.	—	—	
	5,677,549	10/14/97	Takayama et al.	—	—	
	5,696,386	12/09/97	Yamazaki	—	—	
	5,696,388	12/9/97	Funada et al.	—	—	
	5,705,829	1/6/98	Miyanaga et al.	—	—	
	5,712,191	1/27/98	Nakajima et al.	—	—	
✓	5,756,364	5/26/98	Tanaka et al.	—	—	
Ek	5,773,327	6/30/98	Yamazaki et al.	—	—	

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Ek	R. Nemanich et al., "Structure and growth of the interface of Pd on a-Si-H", Physical Review 3, Volume 23, Number 12, 15 June 1981.
Ek	R. Nemanich et al., "Initial Phase Formation at the Interface of Ni, Pd, or Pt and Si" (6 pages).
CK	M. Thompson et al. "Silicide formation in Pd-a-SiH Schottky barriers", Appl. Phys. Lett., Vol. 39, No. 3, 1 August 1981, (5 pages).

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EK	5,313,075	05/17/94	Zhang et al	—	—	—
EK	✓ 5,523,240	06/04/96	Zhang et al	—	—	—

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EK	1-238024	09/22/89	Japan	—	—	Abstract	
EK	2-224253	09/06/90	Japan	—	—	Abstract	
EK	3-34434	02/14/91	Japan	—	—	Abstract	
EK	3-132041	06/05/91	Japan	—	—	Abstract	
EK	4-110470	04/10/92	Japan	—	—	Abstract	
EK	4-165679	06/11/92	Japan	—	—	Abstract	
EK	58-98933	06/13/83	Japan	—	—	Abstract	
EK	60-241269	11/30/85	Japan	—	—	Abstract	
EK	62-119974	06/01/87	Japan	—	—	Abstract	
EK	63-105970	05/11/88	Japan	—	—	Abstract	
EK	EP 0 459 763	05/02/97	Europe	—	—		

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Carl Kish

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EK	✓ 03-034459	02/14/1991	Japan			Abst.	
EL	✓ 60-066471	04/16/1985	Japan			Abst.	
EK	✓ 60-187030	09/24/1985	Japan			Abst.	
EK	✓ 63-223788	09/19/1988	Japan			C.Stmt.	

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C. K. K.

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EL	60-109282	06/14/1985	JP	—	—	Eng Abst	

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